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Fighting Downturns with Fiscal Policy

Should fiscal policy be used to fight recessions? Most economists would answer that, for normal economic ups and downs, business cycle stabilization should be left to monetary policy and that fiscal policy should focus on long-term goals. The main argument is that monetary policy can act quickly when output falls below an economy's potential or when inflation varies from its optimal rate, and that these actions can be reversed quickly as conditions change. By contrast, modifications to the fiscal code take a long time to enact and implement and can be very difficult to undo.

However, the current recession is clearly not a typical downturn. In particular, unlike other post-World War II U.S. recessions, monetary policy has run out of its usual ammunition to boost economic activity. The federal funds rate, the principal tool that the Federal Reserve uses to stabilize the economy, is now hovering near zero. Because interest rates cannot be negative in nominal terms, monetary policymakers are unable to lower the federal funds rate further. In this situation, the Federal Reserve has turned to unconventional tools to get around this barrier, commonly called the zero lower bound.

Because of the severity of the recession and the uncertain effects of unconventional monetary policy tools, Congress and the Obama Administration have also enacted a fiscal stimulus package. The $787 billion program approved by Congress in February includes a mix of tax and spending measures aimed at creating jobs and boosting output. Yet, economists and political leaders heatedly debate whether tax cuts or increased spending are more effective, a dispute that's hard to resolve because of the difficulty of determining the precise magnitude of fiscal policy's impact on real GDP. This *Economic Letter* examines some recent empirical studies analyzing data on the relative effects of higher spending and lower taxes on output.

A simple theory of the effects of fiscal policy

Basic Keynesian theory suggests that the effect of a change in fiscal policy on real GDP is more than one-for-one. For instance, since government spending is one component of GDP, an increase in government purchases, by putting idle resources to work, boosts income one-for-one when the money is initially spent. In addition to that, though, since consumption is a function of current after-tax income in this framework, households also increase their consumption in line with their higher incomes, multiplying the effect of the initial government spending on GDP. The "multiplier effect" of government spending on GDP is thus greater than one.

This simple framework also predicts that the multiplier effect of a tax cut on GDP will be less than that for government spending. This is because a change in government spending affects GDP one-for-one, while part of a tax cut will be saved and will, at least initially, translate into a less than one-for-one increase in GDP.

Clearly, these results hinge on many underlying assumptions. One is that households are not assessing their future income when deciding how much to consume. Instead, they are assumed to spend a lot as long as their current income is high. However, households may be concerned about the impact of fiscal measures on their future tax bills. Households may not decide to consume as much if they expect taxes to rise and their future after-tax income to be lower. Moreover, this framework assumes that investment and net exports are insensitive to the change in fiscal policy. However, the response of investment will clearly depend on the behavior of interest rates, which in turn will depend on monetary policy. If monetary policy changes in response to fiscal policy, investment would be affected.

Large-scale econometric models often used in policymaking institutions make adjustments for household behavior and investment (see, for instance, Elmendorf and Reifschneider 2002). Nonetheless, the relative size of their fiscal multipliers is in line with this simple framework's predictions. For in-

stance, earlier this year, Christina Romer, the chair of the Council of Economic Advisers, and Jared Bernstein, an advisor to Vice President Biden, estimated that the effects of permanently increasing government purchases by 1% of GDP would be to raise output by 1.5% two years after. At the same time, their model predicts that a tax cut of 1% of GDP would increase output by only 1% two years down the road.

Challenging the model

In a recent paper, Cogan et al. (2009) challenged the Romer/Bernstein estimates using an alternative New Keynesian model in which households and firms are more forward-looking than in typical large-scale econometric models. Using this model, the authors argue that a 1% increase in government spending would produce a mere 0.5% rise in output two years later.

In this framework, household and firm decisions to spend, invest, and produce are heavily influenced by their expectations of the future. Households anticipate that higher budget deficits will ultimately be financed with higher taxes, and they consume less as a result. Higher government spending thus crowds out consumption. Moreover, Cogan and his coauthors assume that, as the economy recovers following the increase in government spending, monetary policy becomes more restrictive, choking off investment. In contrast, Romer and Bernstein assume that the Federal Reserve keeps the federal funds rate constant, thus mitigating the adverse effect on investment. The crowding out of consumption and investment is relatively strong in the New Keynesian framework, offsetting much of the stimulatory impact of higher government spending.

In other words, the effects of fiscal policy on real GDP are quite sensitive to underlying modeling assumptions regarding the behavior of households, firms, and monetary policy. This creates fertile ground for good empirical work.

Recent empirical work

Empiricists interested in calculating the impact of movements in government spending and taxes on real GDP face multiple challenges, but the biggest hurdle is distinguishing fiscal policy changes that are fundamental from changes that are responses to economic conditions. Many influences other than tax and spending policy determine the trajectory of economic output. And taxation and spending vary over the course of the business cycle. The difficulty is to make sure to capture the effect of a change in fiscal policy on the economy and not the effect of changes in the economy on fiscal policy. Those fiscal policy changes that are independent of economic circumstances are called exogenous, and those that are reactions to economic conditions are called endogenous.

This is a particularly relevant issue because government spending and taxes respond endogenously to economic activity via automatic stabilizers—features built into the fiscal system to stimulate or depress economic activity automatically. Taxes automatically fall in recessions as household incomes decline. Transfer payments, such as unemployment insurance, rise. Moreover, government spending and taxes may have complex relationships with each other. For example, the payroll tax increased in 1965 to offset the costs of the new Medicare program on the federal budget (Romer and Romer 2008).

Typically, empirical studies adjust for the automatic stabilizers built into fiscal policy by taking into account movements in GDP when measuring government spending and taxes. Recent empirical analyses have taken a number of additional approaches to separate endogenous from exogenous factors.

Romer and Romer address the impact of tax changes by performing a narrative analysis of U.S. tax policy since 1945. Using the historical record, they try to isolate exogenous tax changes by identifying the key reasons underlying each modification to the tax code and rejecting those that were clear responses to economic activity. Alternatively, Blanchard and Perotti (2002) use a timing restriction to identify changes in government spending and taxes that are exogenous to unexpected movements in output. They argue that, because it takes time for legislators to understand a sudden movement in activity and then pass legislation to address it, it is reasonable to assume that, at high enough frequency, changes in taxes and government spending are independent of current output.

In contrast to these studies, Mountford and Uhlig (2005) use a mix of economic theory and time series analysis to identify exogenous movements in government spending and taxes. They build a small empirical model of the U.S. economy and look at the behavior of different "shocks" to that

model, that is, disturbances that are unrelated to other variables in the system. They identify as exogenous movements in government spending those disturbances that end up raising government spending in the empirical model for a defined period of time. Similarly, exogenous movements in taxes are classified as those disturbances that end up raising tax revenues.

An interesting aspect of this new literature is that, notwithstanding their vastly different methodologies, they reach surprisingly similar conclusions. Regarding the impact of tax cuts on the level of real GDP one year after the change in taxes, the three studies predict a multiplier of roughly 1.2, as shown in Table 1. Moreover, Table 2 shows that, in contrast to theoretical predictions from the simple Keynesian framework, the analyses found that government spending had less bang for the buck than tax cuts. For instance, one year after the increase in spending, the impact on the level of real GDP is less than one-for-one, partly reflecting a decline in investment. There is more disagreement, however, about the effects of tax cuts on output two years after they are implemented, as Table 1 indicates. The analyses of Romer and Romer and Mountford and Uhlig find very large tax multipliers, while Blanchard and Perotti continue to find effects similar to those occurring after one year.

The stimulus package: Will it work?

Earlier this year, Congress passed a $787 billion fiscal stimulus package spread over 10 years. Of that total, $584 billion are spent in 2009 and 2010, with 19% of the funds allocated toward increases in government spending, 33.4% in transfers to the states, and 47.6% toward tax cuts. The findings from the three empirical studies, particularly those of Romer and Romer and Mountford and Uhlig, suggest that the fiscal stimulus package will boost growth substantially over the next two years, partly because it includes sizeable tax cuts that can be implemented quickly and that have significant effects on output.

Table 1
Tax cut multipliers (on level of real GDP)

	1 year	2 years
Mountford-Uhlig	1.2	2.8
Romer-Romer	1.3	3.0
Blanchard-Perotti	1.1	1.3

Table 2
Government spending multipliers (on level of real GDP)

	1 year	2 years
Mountford-Uhlig	0.6	0.7
Blanchard-Perotti	0.4	0.7

Nevertheless, the uncertainty regarding those estimates remains high. Several economists remain skeptical that fiscal multipliers—whether from spending or taxes—are very large (see, for instance, Barro 2009). Moreover historical relationships may prove much less reliable during this downturn. Faced with a large decline in wealth and tight credit availability, households may very well respond differently to tax cuts today than they have in the past.

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